We Claim:

1. An electronic module, comprising:

a semiconductor chip;

an uppermost metallization layer with rigid contact surfaces disposed on said semiconductor chip; and

flexible chip contacts each containing a layer of an elastomeric embedding compound with electrically conductive components disposed on said uppermost metallization layer, and a dimensionally stable contact plate having a lower face, an upper face, and edge faces embedded in said elastomeric embedding compound, at least said lower face of said contact plate electrically connected to said rigid contact surface on said semiconductor chip through said electrically conductive components of said elastomeric embedding compound.

2. The electronic module according to claim 1, wherein said flexible chip contacts each have a cover composed of said elastomeric embedding compound covering said edge faces and said upper face of said contact plate.

3. The electronic module according to claim 1, wherein said elastomeric embedding compound has electrically conductive fibers.

4. The electronic module according to claim 1, wherein said elastomeric embedding compound contains a felt composed of electrically conductive fibers.

5. The electronic module according to claim 1, wherein said elastomeric embedding compound contains bonding wires with bonding clips mounted on said rigid contact surface by said bonding clips and said bonding wires having free ends making contact with said lower face of said dimensionally stable contact plate.

6. The electronic module according to claim 1, wherein said elastomeric embedding compound contains electrically conductive nanoparticles.

7. The electronic module according to claim 6, wherein said elastomeric embedding compound has flexible agglomerates formed from said electrically conductive nanoparticles.

8. The electronic module according to claim 2, wherein said dimensionally stable contact plate contains a composite material composed of metal and ceramic.

9. The electronic module according to claim 1, wherein said dimensionally stable contact plate has a ceramic layer with

metal-filled continuous pores, and a closed metal layer covering at least one of said upper face and said lower face of said dimensionally stable contact plate.

10. The electronic module according to claim 1, further comprising a rigid plastic layer surrounding said layer composed of said elastomeric embedding compound.

11. The electronic module according to claim 10, wherein said rigid plastic layer is formed of a polyimide.

12. A semiconductor wafer, comprising:

a semiconductor wafer having at least two semiconductor chip positions disposed in rows and columns on said semiconductor wafer;

electronic modules each disposed at one of said semiconductor chip positions, said electronic modules each containing:

a semiconductor chip;

an uppermost metallization layer with rigid contact surfaces disposed on said semiconductor chip; and

flexible chip contacts each containing a layer of an elastomeric embedding compound with electrically conductive components disposed on said uppermost metallization layer, and a dimensionally stable contact plate having a lower face and an upper face with edge faces embedded in said elastomeric embedding compound, at least said lower face of said contact plate electrically connected to said rigid contact surface on said semiconductor chip through said electrically conductive components of said elastomeric embedding compound, each of said semiconductor chip positions having said flexible chip contacts, and said semiconductor wafer can be separated to form separate semiconductor chips.

13. A method for producing an electronic module containing a semiconductor chip having flexible chip contacts, which comprises the steps of:

providing a semiconductor wafer having at least two module chip positions disposed in rows and columns;

introducing an integrated circuit into each of the module chip positions;

applying a metallization structure in each of the module chip positions, the metallization structure having an uppermost metallization layer with a rigid contact surface;

applying a surface-structured rigid plastic layer, the surface-structured rigid plastic layer having windows formed therein leaving free the contact surface;

producing a surface-structured layer composed of an elastomeric embedding compound with electrically conductive components, the surface-structured layer filling the windows in the surface-structured rigid plastic layer;

applying one dimensionally stable contact plates onto the surface-structured layer with one of the dimensionally stable contact plates disposed in each of the windows;

separating the semiconductor wafer into semiconductor chips;

fitting the semiconductor chips onto circuit mounts;

connecting the dimensionally stable contact plates to contact pads on the circuit mounts; and

packing the semiconductor chips on the circuit mounts in a package.

14. The method according to claim 13, which further comprises producing the surface-structured layer with electrically conductive components by bonding bonding clips in the windows, and embedding the bonding clips in the elastomeric embedding compound of the surface-structured layer in the windows, with free ends of the bonding clips projecting out of the elastomeric embedding compound.

15. The method according to claim 13, which further comprises producing the surface-structured layer with electrically conductive components by mixing the elastomeric embedding compound with the electrically conductive components and filling the windows with the mixture of the elastomeric embedding compound with the electrically conductive components.

16. The method according to claim 15, which further comprises using at least one of nanoparticles and metal fibers as the electrically conductive components.

17. The method according to claim 13, which further comprises

sputtering a composite material composed of ceramic and metal onto the surface-structured layer; and

structuring the composite material to form the dimensionally stable contact plates in each of the windows.

18. The method according to claim 13, which further comprises:

depositing a layer system by initially depositing a metal layer, followed by a porous ceramic layer with continuous pores and, finally, a metal layer in each of the windows and filling the continuous pores; and

structuring the layer system for forming the dimensionally stable contact plates in each of the windows.